

# SPAK (N-17): sc-79595

## BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine (Ser/Thr) protein kinases. SPAK, also known as STK39 (serine threonine kinase 39), DCHT or PASK, is a 547 amino acid protein that localizes to both the cytoplasm and the nucleus and contains one protein kinase domain. Expressed predominately in pancreas, brain, heart, lung, liver and testis, SPAK functions as a Ser/Thr protein kinase that catalyzes the ATP-dependent phosphorylation of target proteins and is thought to be involved in mediating stress-activated signals. The gene encoding SPAK maps to human chromosome 2, which houses over 1,400 genes and comprises nearly 8% of the human genome.

## REFERENCES

1. Johnston, A.M., et al. 2000. SPAK, a STE20/SPS1-related kinase that activates the p38 pathway. *Oncogene* 19: 4290-4297.
2. Qi, H., et al. 2001. Androgens induce expression of SPAK, a STE20/SPS1-related kinase, in LNCaP human prostate cancer cells. *Mol. Cell. Endocrinol.* 182: 181-192.
3. Dowd, B.F. and Forbush, B. 2003. PASK (proline-alanine-rich STE20-related kinase), a regulatory kinase of the Na-K-Cl cotransporter (NKCC1). *J. Biol. Chem.* 278: 27347-27353.
4. Piechotta, K., et al. 2003. Characterization of the interaction of the stress kinase SPAK with the Na<sup>+</sup>-K<sup>+</sup>-2Cl<sup>-</sup> cotransporter in the nervous system: evidence for a scaffolding role of the kinase. *J. Biol. Chem.* 278: 52848-52856.
5. Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 607648. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
6. Moriguchi, T., et al. 2005. WNK1 regulates phosphorylation of cation-chloride-coupled cotransporters via the STE20-related kinases, SPAK and OSR1. *J. Biol. Chem.* 280: 42685-42693.

## CHROMOSOMAL LOCATION

Genetic locus: STK39 (human) mapping to 2q24.3; Stk39 (mouse) mapping to 2 C1.3.

## SOURCE

SPAK (N-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of SPAK of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-79595 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

SPAK (N-17) is recommended for detection of SPAK of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

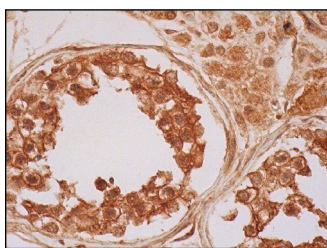
Suitable for use as control antibody for SPAK siRNA (h): sc-76547, SPAK siRNA (m): sc-76548, SPAK shRNA Plasmid (h): sc-76547-SH, SPAK shRNA Plasmid (m): sc-76548-SH, SPAK shRNA (h) Lentiviral Particles: sc-76547-V and SPAK shRNA (m) Lentiviral Particles: sc-76548-V.

Molecular Weight of SPAK: 60 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941. 3) Immunohistochemistry: use ImmunoCruz<sup>™</sup>: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

## DATA



SPAK (N-17): sc-79595. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic, membrane and nuclear staining of cells in seminiferous ducts and cytoplasmic and nuclear staining of Leydig cells.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.